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21. (New) The method for coating a substrate according to claim 12, wherein the aqueous or water containing organic coating solution further includes an adhesive agent, the proportion of adhesive agent to additive particles is in a range of 1:2.

22. (New) The method for coating a substrate according to claim 12, wherein the aqueous or water containing organic coating solution further includes an adhesive agent, the proportion of adhesive agent to additive particles is in a range of 1:3.

23. (New) The method for coating a substrate according to claim 12, wherein the aqueous or water containing organic coating solution further comprises hexamethylenetetramine.

24. (New) The initial solids mixture according to claim 2, wherein the proportion of adhesive agent to additive particles is in a range of 1:2.

25. (New) The initial solids mixture according to claim 2, wherein the proportion of adhesive agent to additive particles is in a range of 1:3.

26. (New) The initial solids mixture according to claim 2, wherein the aqueous or water containing organic coating solution further comprises hexamethylenetetramine.--.

#### REMARKS

##### **I. Introduction**

With the addition of claims 11 to 26, claims 1 to 26 are pending in the present application. In view of the foregoing amendments and following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicant notes with appreciation the acknowledgment of the claim for foreign priority and the indication that all of the certified copies of the priority documents have been received.

Applicant thanks the Examiner for considering the previously filed Information Disclosure Statement, PTO-1449 paper and cited references.

## **II. Objection to the Specification**

The Office Action objects to the use of “TiO” in example 34 at page 8, line 34 of the Specification. The Specification has been corrected as suggested in the Office Action. No new matter has been added. Accordingly, withdrawal of this objection is respectfully requested.

## **III. Objection to Claim 2**

The Office Action objects to claim 2 under 37 C.F.R. § 1.75 (c) as of improper dependent form for allegedly failing to further limit the subject matter of a previous claim. Applicant respectfully submits that claim 2, as amended, is in proper dependent. Accordingly, withdrawal of this objection is therefore respectfully submitted.

## **IV. Rejection of Claims 3 and 4 Under 35 U.S.C. § 112, First Paragraph**

Claims 3 and 4 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As an initial matter, the Office bears the initial burden of presenting “evidence or reasons why persons skilled in the art would not recognize in an applicant’s disclosure a description of the invention defined by the claims.” (See M.P.E.P. § 2163.04 (citing *In re Wertheim*, 541 F.2d 257, 262, 265, 191 U.S.P.Q. 90, 96, 98 (C.C.P.A. 1976))) (emphasis added). The Manual of Patent Examining Procedure also provides that if an examiner rejects a claim based on the lack of a written description, the examiner should “identify the claim limitation not described” and provide “reasons why persons skilled in the art would not recognize the description of this limitation in the disclosure of the application.” (See *id.*). However, the written description requirement is not an *in haec verba* requirement. That is, “the specification ‘need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the [filing] date the applicant had invented what is now claimed.’” *All Dental Prodx LLC v. Advantage Dental Products Inc.*, 64 U.S.P.Q.2d 1945, 1948 (Fed. Cir. 2002) (quoting *Eiselstein v. Frank*, 52 F.3d 1035, 1038, 34 U.S.P.Q.2d 1467, 1470 (Fed. Cir. 1995)).

Notwithstanding the foregoing and despite Applicant’s disagreement with the merits of this rejection, to facilitate matters, the Specification has been amended herein to

make reference to the range claimed in claim 4 as filed. Moreover, claim 3 has been amended herein without prejudice to delete the phrase “configured to be.” In view of the foregoing, it is respectfully submitted that all claims 3 and 4 are supported by an adequate written description, and withdrawal of this rejection is therefore respectfully requested.

**V. Rejection of Claims 3, 6 and 8 Under 35 U.S.C. § 112, Second Paragraph**

Claims 3, 6 and 8 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite for allegedly failing to particularly point out and distinctly claim the subject matter of the invention. Claim 8 has been canceled thus rendering moot the rejection of claim 8.

The Office Action contends that claim 3 is not clear because the Specification allegedly does not teach how the mixture is “configured.” While Applicant respectfully disagrees with the merits of this rejection, to facilitate matters, claim 3 has been amended herein without prejudice to delete the phrase “configured to be.” The Office Action further alleges that the phrase “lower oxidation state” in claim 6 is a relative term, which renders the claim indefinite. Applicant respectfully submits that claims 3 and 6, as amended herein, are sufficiently clear. Therefore, withdrawal of the 35 U.S.C. § 112 rejection and allowance of claims 3 and 6 is respectfully requested.

The Office Action further alleges that claim 6 is improperly dependent upon claim 5 because the lower oxidation states of transition elements are allegedly insulators. The Office Action further alleges that claim 6 is indefinite because the claim is drawn to oxides, which allegedly are not conductive. Applicant respectfully traverses these allegations. It is respectfully requested pursuant to 37 C.F.R. § 1.104(d)(2) that the Examiner provide an affidavit and/or that the Examiner provide published information concerning these assertions, since these unsupported assertions are apparently based on the personal knowledge of the Examiner. Notwithstanding the above, Applicant submits that claim 6, as amended, overcomes the rejection. Therefore, withdrawal of the 35 U.S.C. § 112 and allowance of claim 6 is respectfully requested.

**VI. Rejection of Claims 1 to 7 Under 35 U.S.C. § 102(b)**

Claims 1 to 7 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,654,246 (“Newkirk et al.”). It is respectfully submitted that Newkirk et al. do not anticipate claims 1 to 7, as amended, for the following reasons.

Claim 1 relates to an aqueous or water containing organic coating solution with electrically conductive additive particles including at least one of boron carbide, silicon carbide, a conductive oxide, silicide, carbide or boride of transitional elements and lanthanides. Claim 1 recites that the electrical conductivity of the additive particles is in the metallic range and that the additive particles are configured to have a continuous physical connection in at least one spatial direction.

Newkirk et al. purportedly relate to a method of making a self-supporting ceramic composite structure having a filler embedded therein. Abstract. The structure is stated to be formed by placing a parent metal adjacent to a permeable filler and heating the assembly to melt the parent metal and provide a molten body of parent metal which is contacted with a suitable oxidant. The filler is stated to comprise, for example, a lattice of reinforcing rods bars, wires, plates, platelets, hollow bodies, a bed of spheres (solid or hollow bubbles), powders or other particulates, aggregate, refractory fiber cloth, wire cloth, steelwool, fibers, tubes, tubules, pellets, whiskers, or the like, or a combination of the foregoing. See col. 18, lines 19 to 25. The filler material is stated, in any case, to be arranged with respect to the parent metal so that a direction of growth of the oxidation reaction product will be towards the filler material, and the oxidation reaction product will permeate or engulf at least a portion of the filler material such that void space between filler particles or components will be filled in by the grown oxidation reaction product which, in combination with any non-oxidized constituents of the parent metal, forms a ceramic matrix. See col. 18, line 25 to 33. Nitrogen is stated to be employed as the oxidant with aluminum as the parent metal to grow an aluminum nitride oxidation reaction product. See col. 19, lines 36 to 38. Examples of fillers, stated by Newkirk et al. to be useful, are listed in columns 20 to 21.

Newkirk et al. do not disclose, or even suggest, an aqueous or water containing organic coating solution, let alone an aqueous or water containing organic coating solution with electrically conductive additive particles including at least one of boron carbide, silicon carbide, a conductive oxide, silicide, carbide or boride of transitional elements and lanthanides, as recited in amended claim 1. Further, nowhere do Newkirk et al. disclose, or even suggest, additive particles configured to have a continuous physical connection in at least one spatial direction, as recited in claim 1. Further, nowhere do Newkirk et al. disclose, or even suggest, additive particles having an electrical conductivity in the metallic range, as

recited in claim 1. Accordingly, Newkirk et al. do not disclose all of the limitations of amended claim 1.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). As more fully set forth above, it is respectfully submitted that Newkirk et al. do not disclose, or even suggest, an aqueous or water containing organic coating solution, let alone an aqueous or water containing organic coating solution with electrically conductive additive particles including at least one of boron carbide, silicon carbide, a conductive oxide, silicide, carbide or boride of transitional elements and lanthanides, as recited in amended claim 1. Further, nowhere do Newkirk et al. disclose, or even suggest, additive particles configured to have a continuous physical connection in at least one spatial direction, as recited in claim 1. Further, nowhere do Newkirk et al. disclose, or even suggest, additive particles having an electrical conductivity in the metallic range, as recited in claim 1. It is therefore respectfully submitted that Newkirk et al. do not anticipate amended claim 1.

Additionally, to reject a claim under 35 U.S.C. § 102, the Examiner must demonstrate that each and every claim limitation is contained in a single prior art reference. See, *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). Still further, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See, *Akzo, N.V. v. U.S.I.T.C.*, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). In particular, it is respectfully submitted that, at least for the reasons discussed above, the reference relied upon would not enable a person having ordinary skill in the art to practice the inventions of the rejected claims, as discussed above. Also, to the extent that the Examiner is relying on the doctrine of inherency, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics *necessarily* flows from the teachings of the applied art.” See M.P.E.P. § 2112 (emphasis in original); and see, *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464

(Bd. Pat. App. & Inter. 1990). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic. Accordingly, the anticipation rejection as to the rejected claims must necessarily fail for the foregoing reasons.

In summary, it is respectfully submitted that Newkirk et al. do not anticipate amended claim 1. Therefore, withdrawal of 35 U.S.C. § 102(b) rejection and allowance of amended claim 1 is respectfully requested.

As for claims 2 to 7, which ultimately depend from claim 1 and therefore include all of the limitations of amended claim 1, it is respectfully submitted that Newkirk et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of amended claim 1. Therefore, withdrawal of 35 U.S.C. § 102(b) rejection and allowance of claims 2 to 7 is respectfully requested.

#### **VII. Rejection of Claims 1 to 5 and 8 Under 35 U.S.C. § 102(e)**

Claims 1 to 5 and 8 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,420,293 (“Chang et al.”). Claim 8 has been canceled thus rendering the rejection of this claim moot. Applicant respectfully submits that Chang et al. do not anticipate claims 1 to 5, as amended herein, for the following reasons.

Chang et al. purportedly relate to a ceramic matrix nanocomposite. Abstract. A method for producing the nanocomposite is stated to include the steps of combining a nanotube filler made up of a nanotube material and a ceramic matrix made up of a nanocrystalline ceramic oxide, forming an article therefrom, and sintering the article under elevated pressure at elevated temperature. Abstract.

Chang et al. do not disclose, or even suggest, an aqueous or water containing organic coating solution, let alone an aqueous or water containing organic coating solution with electrically conductive additive particles including at least one of boron carbide, silicon carbide, a conductive oxide, silicide, carbide or boride of transitional elements and lanthanides, as recited in amended claim 1. Further, nowhere do Chang et al. disclose, or even suggest, additive particles configured to have a continuous physical connection in at least one spatial direction, as recited in claim 1. Further, nowhere do Chang et al. disclose, or even suggest, additive particles having an electrical conductivity in the metallic range, as recited in claim 1. Accordingly, Chang et al. do not disclose all of the limitations of amended

claim 1. Therefore, Chang et al. do not anticipate claim 1. Withdrawal of the 35 U.S.C. § 102(e) rejection and allowance of claim 1 is therefore respectfully requested.

As for claims 2 to 5, which depend from claim 1 and therefore include all of the limitations of claim 1, it is respectfully submitted that Chang et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of amended claim 1. Therefore, withdrawal of 35 U.S.C. § 102(e) rejection and allowance of claims 2 to 5 is respectfully requested.

#### **VIII. Rejection of Claims 1 to 4, 9 and 10 Under 35 U.S.C. § 102(e)**

Claims 1 to 4, 9 and 10 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,280,496 (“Kawai et al.”). Applicant respectfully submits that Kawai et al. do not anticipate the present claims as amended herein for the following reasons.

Kawai et al. purportedly relate to a silicon carbide based composite material. Abstract. The composite material is stated to include a first metal component, mainly consisting of aluminum or copper, and a second component, mainly consisting of particles of silicon carbide. Abstract. The material is stated to be obtained by heating a compact of the raw material powder containing the first and second components at a temperature not lower than the melting point of the metal mainly consisting of aluminum or copper and by forging and solidifying under pressure. Abstract.

Kawai et al. do not disclose, or even suggest, an aqueous or water containing organic coating solution, let alone an aqueous or water containing organic coating solution with electrically conductive additive particles including at least one of boron carbide, silicon carbide, a conductive oxide, silicide, carbide or boride of transitional elements and lanthanides, as recited in amended claim 1. Further, nowhere do Kawai et al. disclose, or even suggest, additive particles configured to have a continuous physical connection in at least one spatial direction, as recited in claim 1. Further, nowhere do Kawai et al. disclose, or even suggest, additive particles having an electrical conductivity in the metallic range, as recited in claim 1. Accordingly, Kawai et al. do not disclose all of the limitations of amended claim 1. Therefore, Kawai et al. do not anticipate claim 1. Withdrawal of the 35 U.S.C. § 102(e) rejection and allowance of claim 1 is therefore respectfully requested.

As for claims 2 to 4, 9 and 10, which ultimately depend from amended claim 1 and therefore include all of the limitations of amended claim 1, it is respectfully submitted that Kawai et al. do not anticipate these dependent claims for at least the same reasons given



above in support of the patentability of amended claim 1. Therefore, withdrawal of 35 U.S.C. § 102(e) rejection and allowance of claims 2 to 4, 9 and 10 is respectfully requested.

**IX. Support for Amendments to Claims 1 to 7, 9 and 10**

Support for the common amendment to claim 1 to 7, 9 and 10 can be found in the Specification at least at page 5, lines 28 to page 6, line 11. Support for the amendment to claim 2 can be found in the Specification at least at page 3, lines 30 to 37 and page 6, line 24. Support for the amendment to claim 3 can be found in the Specification at least at page 3, lines 5 to 12. Support for the amendment to claim 6 can be found in the Specification at least at page 3, lines 5 to 12. Support for the amendment to claim 1 can be found in the Specification at least at page 5, lines 28 to page 6, line 11.

**X. New Claims 11 to 26**

New claims 11 to 26 have been added herein. It is respectfully submitted that new claims 11 to 26 do not add any new matter and are fully supported by the present application, including the Specification. It is respectfully submitted that new claims 11 to 26 are allowable.

**XI. Conclusion**

Attached hereto is a marked-up version of the changes made to the Specification and claims by the current Amendment. The attached page is captioned "Version with Markings to Show Changes Made."

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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**IN THE SPECIFICATION:**

On page 3, the paragraph starting on line 22 has been amended as follows:

--Some of the compounds named even have exceptionally good conductivity in the metallic range ( $\sigma > 10^2 \text{ 1/}\Omega\text{cm}$  and  $\sigma < 10^7 \text{ 1/}\Omega\text{cm}$ ), even at particle sizes in the range of less than 1  $\mu\text{m}$ , embedded in a non-conducting polymer matrix, for example, as long as that guarantees percolation of the conducting particles among one another, or the coating having particle sizes in the range of the aimed-at layer thickness is electrically connected through to the carrier at least in one direction.--.

On page 8, the paragraph starting on line 28 has been amended as follows:

--Example 10

15 g novolak (Bakelite Company) dilutable in water/solvent mixture,

1.2 g hexamethylenetetramine

alternatively resol, alternatively resol/novolak mixture, alternatively another adhesive agent

5 g [TiO] TiO<sub>2</sub>, alternatively 15 g [TiO] TiO<sub>2</sub> and 30 g zinc powder is made up to 100 g with water/solvent mixture.--.

**IN THE CLAIMS:**

Claim 8 has been canceled without prejudice.

New claims 11 to 26 have been added.

Claims 1 to 7, 9 and 10, have been amended, without prejudice, as follows:

1. (Amended) An [initial solids mixture for a later organic coating] aqueous or water containing organic coating solution with electrically conductive additive particles, comprising[:

additive particles, including] at least one of boron carbide, silicon carbide, [a compound of transitional elements and lanthanides,] a conductive oxide, silicide, carbide of transitional elements, boride of transitional elements and lanthanides, wherein an electrical conductivity of the additive particles [being] is in [a] the metallic range, and the additive

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particles are configured to have a continuous physical connection in at least one spatial direction.

2. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, [wherein the later organic coating includes one of a pigmented coating and a priming coat] further comprising an adhesive agent.

3. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, wherein the [initial solids mixture is configured to be applied to a substrate according to a coil coating method] transitional elements and lanthanides form one of mixed oxides, silicides, carbides and borides.

4. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, wherein the electrical conductivity is in a range of  $\sigma > 10^2 \text{ l}/\Omega\text{cm}$  to  $\sigma < 10^7 \text{ l}/\Omega\text{cm}$ .

5. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, wherein the transitional elements include at least one of iron, manganese, zirconium, titanium, molybdenum, vanadium and tungsten.

6. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim [5] 1, wherein the transitional elements [are in a lower oxidation state] and lanthanides show a mixture of various oxidation states.

7. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, wherein the lanthanide includes cerium.

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9. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 1, further comprising a non-noble metal in an elemental state.

10. (Amended) The [initial solids mixture] aqueous or water containing organic coating solution with electrically conductive additive particles according to claim 9, wherein the non-noble metal includes at least one of zinc and aluminum.